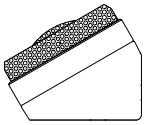
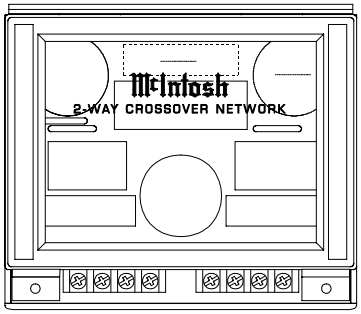
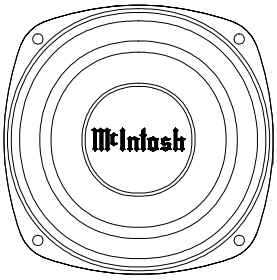
McIntosh

OWNER'S MANUAL

MSS410 / MSS510 / MSS610
Loudspeaker Systems







MSS410
MSS510
MSS610

McIntosh Laboratory, Inc. 2 Chambers Street Binghamton, New York 13903-2699 Phone: 607-723-3512 FAX: 607-724-0549

Thank You

Your decision to own this McIntosh MSS410, MSS510 or MSS610 Series Loudspeaker System ranks you at the very top among discriminating music listeners. You now have "The Best." The McIntosh dedication to "Quality," is assurance that you will receive many years of musical enjoyment from this unit.

Please take a short time to read the information in this manual. We want you to be as familiar as possible with all the features and functions of your new McIntosh.

Please Take A Moment

The serial number, purchase date and McIntosh dealer name are important to you for possible insurance claim or future service. The spaces below have been provided for you to record that information:

Serial Number: _____

Purchase Date: _____

Dealer Name: _____

Technical Assistance

If at any time you have questions about your McIntosh product, contact your McIntosh dealer who is familiar with your McIntosh equipment and any other brands that may be part of your system. If you or your dealer wish additional help concerning a suspected problem, you can receive technical assistance for all McIntosh products at:

McIntosh Sales Corporation
661 W. Redondo Beach Blvd.
Gardena, CA 90247
Phone: 888-979-3737
Fax: 310-217-9288

Customer Service

If it is determined that your McIntosh product is in need of repair, you can return it to your dealer. You can also return it to the McIntosh Laboratory Service Repair department. For assistance on factory repair return procedure, contact the McIntosh Repair Department at:

McIntosh Laboratory, Inc.
2 Chambers Street
Binghamton, New York 13903
Phone: 607-723-3515
Fax: 607-723-1917

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NOTES:

1. *A McIntosh MSS Series Loudspeaker System consists of a pair of Woofer/Midrange Drivers, a pair of Tweeters and a pair of matching Crossovers Networks. Refer to the section in the Owner's Manual that applies to the specific models in your system. Each pair of the system components is also available separately.*
   Example - The MSS 410 Loudpeaker System consists of one pair of each the following:
   MS440 - Woofer/Midrange Loudspeaker Drivers
   MS10 - Tweeter Loudspeaker Drivers
   MN410 -Crossover Networks
2. ***Do not exceed the power handling capacity of the MS Series Loudspeaker Driver(s) and Crossover Network(s).***
3. *For additional connection information, refer to the owner's manual(s) for any component(s) connected to the MS Series Loudspeaker Drivers and Crossover Networks.*
4. *The Two and Three Way Speaker System Connection Illustrations in this Owners Manual are only two examples of the many different possible combinations. It is recommended that a qualified professional assist you in the choice of a McIntosh Sound System for your vehicle.*
5. *The MS10 Installation Instructions contained in this Owner's Manual have been updated since the printing of the MS10 Owners Manual.*

IMPORTANT SAFETY INSTRUCTIONS!

PLEASE READ THEM BEFORE OPERATING THIS EQUIPMENT.

General:

1. Read all the safety and operating instructions, contained in this owner's manual, before operating this equipment.
2. Retain this owner's manual for future reference about safety and operating instructions.
3. Adhere to all warnings and operating instructions.
4. Follow all operating and use instructions.
5. **Warning: To reduce risk of fire or electrical shock, do not expose this equipment to rain or moisture. This unit is capable of producing high sound pressure levels. Continued exposure to high sound pressure levels can cause permanent hearing impairment or loss. User caution is advised and ear protection is recommended when playing at high volumes.**

Installation:

6. Do not attempt to install the unit yourself, please have an authorized dealer install the unit for you.
7. Locate the equipment away from heat sources such as heater ducts.
8. Mount the equipment only as described in this owner's manual.

Connection:

9. Connect this equipment only to the type of power amplifier as described in this owner's manual.
10. Route cords so that they are not likely to be pinched by items placed upon or against them, paying particular attention to the point where they exit from the instrument.

Care of Equipment:

11. Clean the instrument by dusting with a dry cloth.
12. Do not permit objects of any kind to be pushed into and/or fall into the equipment through enclosure openings. Never spill liquids into the equipment through enclosure openings.

Repair of Equipment:

13. Refer servicing to a qualified service personnel under the following conditions:
    A. The cords or the connectors have been damaged.
    B. Objects have fallen onto, or liquid has been spilled into the equipment.
    C. The equipment has been exposed to rain or water.
    D. The equipment does not operate normally by following the operating instructions contained within this owner's manual.
    E. The equipment has been dropped or damaged in any way.
    F. The equipment exhibits a distinct change in performance - this indicates a need for service.
14. When replacement parts are required, be sure the service technician has used replacement parts specified by McIntosh or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
15. Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

Introduction

The McIntosh woofer/midrange drivers offer extremely smooth frequency response, low distortion, high sensitivity and high power handling capability. When these drivers are combined with other McIntosh Automotive components, you will enjoy sonically accurate music reproduction in your vehicle which meets McIntosh traditional standards of excellence.

Performance Features (MS440, MS540 and MS640)

- **Patented LD/HP[1] Technology**

The widely acclaimed McIntosh Low Distortion/High Performance (LD/HP) [1] magnetic circuit design dramatically reduces harmonic distortion.

- **Die Cast Aluminum Frames**

Die cast aluminum frames ensure excellent rigidity, dimensional integrity and lasting value.

- **Edge Wound Voice Coils on MTB Kapton**

The MTB Kapton Formers with high temperature adhesives improve the power handling capability.

- **Fifteen Ounce Strontium Ferrite Magnet**

The Strontium V magnet ensures high loudspeaker efficiency, a high heat tolerance and reliable operation at high power levels.

Performance Features (MN410, MN510 and MN610)

- **Low Distortion Crossover**

The crossover utilizes Polypropylene capacitors and low distortion Drum inductors. Options include a 6dB tweeter attenuator and Biamp capability.

Performance Features (MS10)

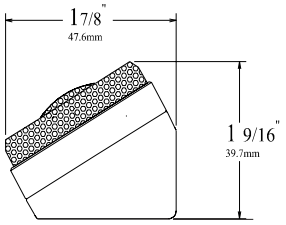
- **Eleven Gram Neodymium Magnet**

The MS10 magnet includes the highest flux energy per volume type magnet currently available.

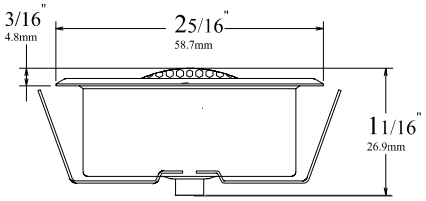
- **Specially Treated Fabric Dome**

The dome material is constructed from a treated fabric which offers excellent internal damping with structural rigidity.

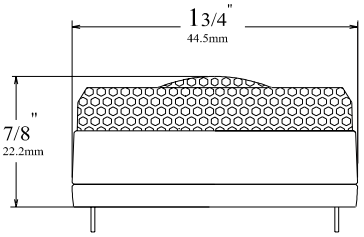
[1]Patent Number 5,151,943



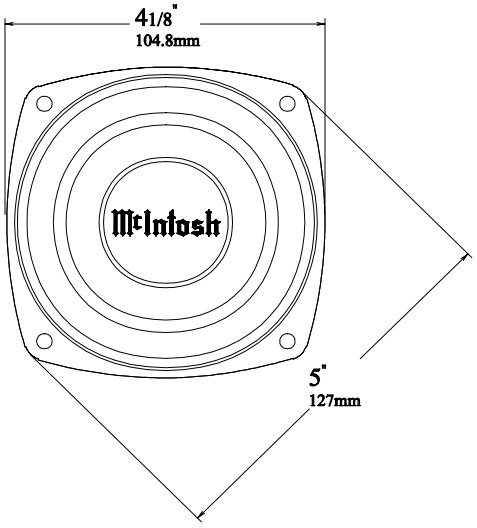
Side View of the MS10 with Angle Mounting Bracket



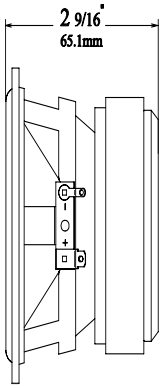
Side View of the MS10 with Flush Mounting Bracket



Side View of the MS10 with Surface Mounting Bracket

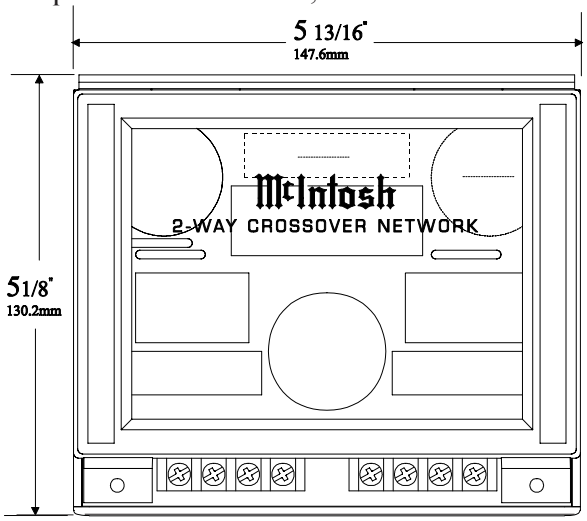


Front View of the MS440

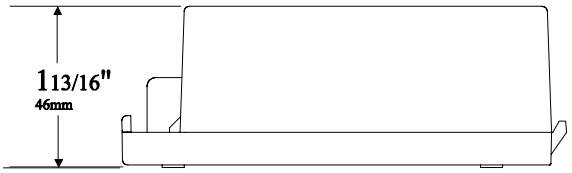


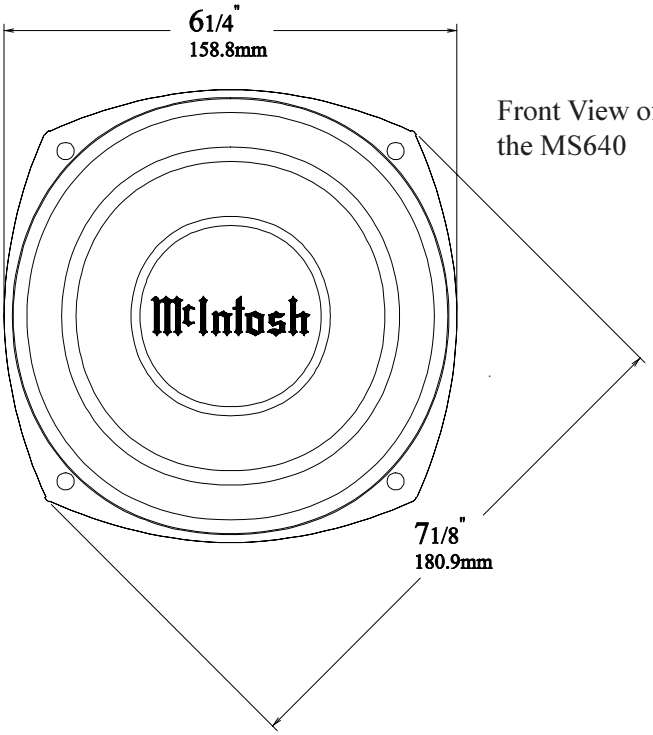
Side View of the MS440

Top View of the MN410, MN510 and MN610

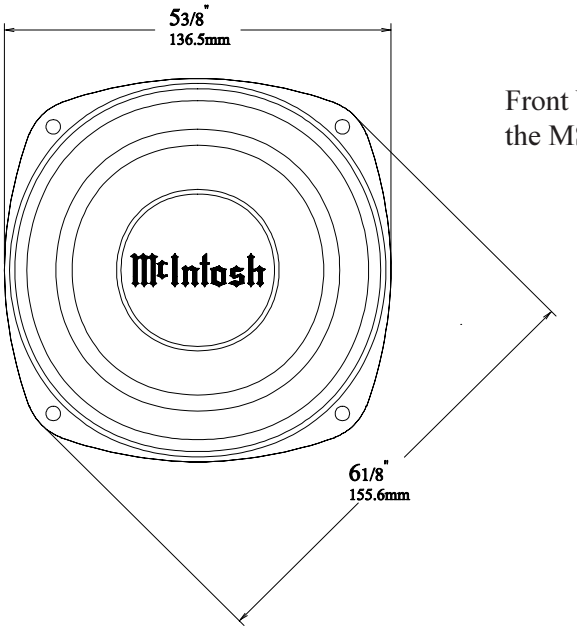


Side View of the MN410, MN510 and MN610

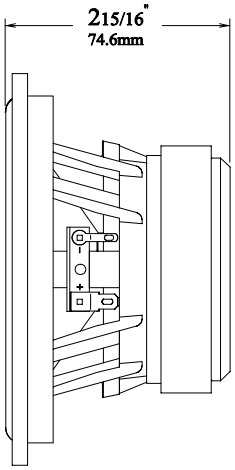




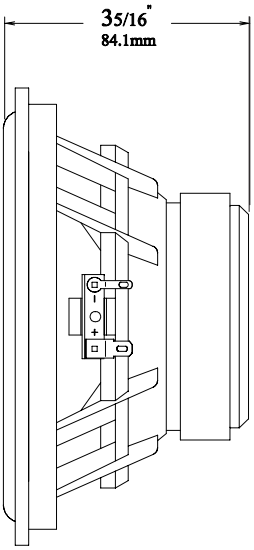
Front View of the MS640



Front View of the MS540



Side View of the MS540



Side View of the MS640

Installation

It is recommended that a qualified professional install all McIntosh Automotive Products.
McIntosh Woofer/Midrange Drivers, Tweeters and Crossover Networks should be used in conjunction with McIntosh Subwoofers and McIntosh Automotive electronics to achieve the best possible performance. McIntosh Subwoofers are designed to operate in the bass frequency range below 120Hz and need not be physically close to midrange and tweeter speakers in order to maintain good imaging and system frequency balance.

Mounting the Woofer/Midrange

1. Using the enclosed template as a guide, mark and drill the four pilot holes for the mounting screws. Drill the mounting holes with an appropriate size drill bit.
2. Cut out the marked circle in the template, and using it as a guide, mark and cut-out the circular hole for the loudspeaker in the vehicle panel or suitable enclosure.
3. Slide four spring clips, with their flat sides facing the driver, onto the edge of the cutout and centered over each of the four mounting holes. Refer to figure 1.
4. Place the narrow foam ring gasket in the matching groove of the plastic mounting ring.
5. Carefully lower the driver into the plastic mounting ring, with the foam ring side facing the driver and making sure the driver mounting holes are aligned with the matching holes in the mounting ring.
6. Place the wide foam ring gasket on the back side of the plastic mounting ring that will contact the vehicle panel or enclosure.
7. Carefully insert the driver/mounting ring assembly into the cutout. Secure the assembly by inserting four of the 1 inch supplied screws, through the driver holes, the plastic mounting ring holes and into the spring clip fasteners previously installed over the mounting holes.
8. Press the metal grille cover into the speaker mounting ring.

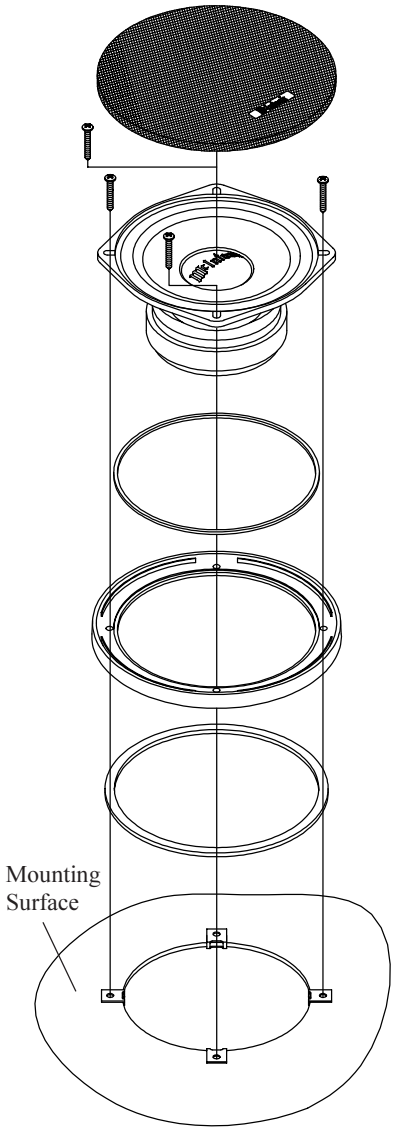


Figure 1

Mounting the Crossovers

The crossovers are supplied with a removable cover that is hinged at the rear and is secured to the base at the front with two machine screws. When selecting a crossover mounting location, make sure that there is adequate room for the top to be raised and removed.

1. Remove the crossover cover machine screws, lift up and unhinge the cover. Refer to figure 2.
2. Using the base of the crossover as a template, mark the four locations to drill holes in the mounting surface for the crossover mounting screws. Drill four holes with an appropriate size drill bit. Refer to figure 3.
3. Secure the crossover to the mounting surface with the four supplied screws.
4. Reinstall the crossover cover and secure it with the two machine screws.
5. Follow instructions for connecting the crossover to the loudspeakers.

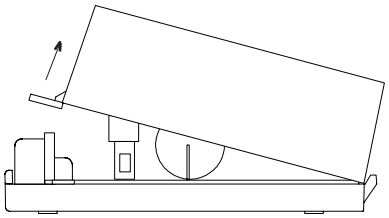


Figure 2

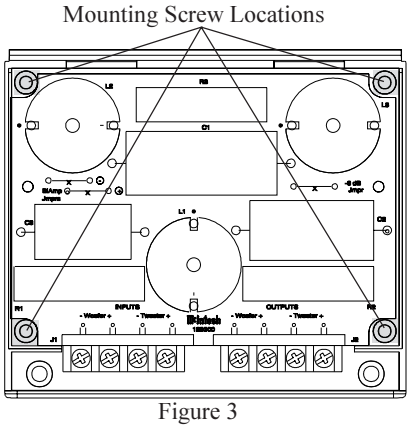


Figure 3

Mounting the Tweeter Dual Angle Bracket

Two different tweeter mounting angles are possible with the bracket supplied. Choose the one which best fits the vehicle. Refer to Figures 4 and 6.

1. Drill holes with an appropriate size drill bit in the mounting surface for the two tweeter wires and the two bracket mounting screws. Also drill corresponding holes in the mounting surface.
2. Secure the bracket with two of the screws supplied.
3. Install the wires to the tweeters by pressing the push-on connectors onto the tweeter connecting lugs. Observe polarity with Red cables to the Positive (+) lugs and Black cables to the negative (-) lugs.
4. Carefully bend the push on connectors inward to allow the wiring to fit in the bracket. Do not bend the tweeter connecting lugs. Refer to Figure 5.
5. Align the tweeter with the bracket and snap in place.

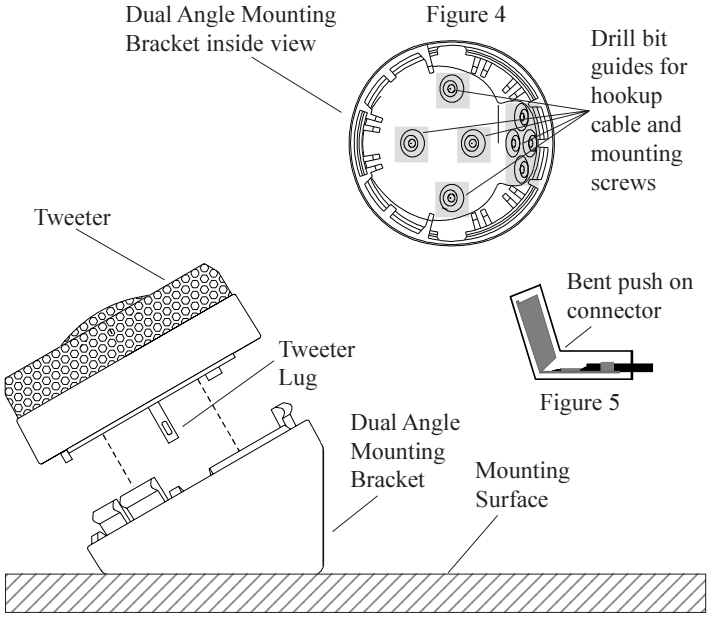


Figure 6

Mounting the Tweeter Surface Bracket

1. Drill holes in the mounting surface with an appropriate size drill bit for the two tweeter wires and the two bracket mounting screws using the round and rectangular holes in the mounting bracket as a guide.
2. Secure the bracket with two of the supplied mounting screws.
3. Feed the tweeter wires from behind the mounting panel, through the mounting bracket, and install to the tweeter by pressing the push on connectors onto the tweeter connecting lugs. Observe polarity with the red wire connected to the positive (+) lug and the black wire connected to the negative (-) lug.
4. Align the tweeter with the bracket and snap in place.

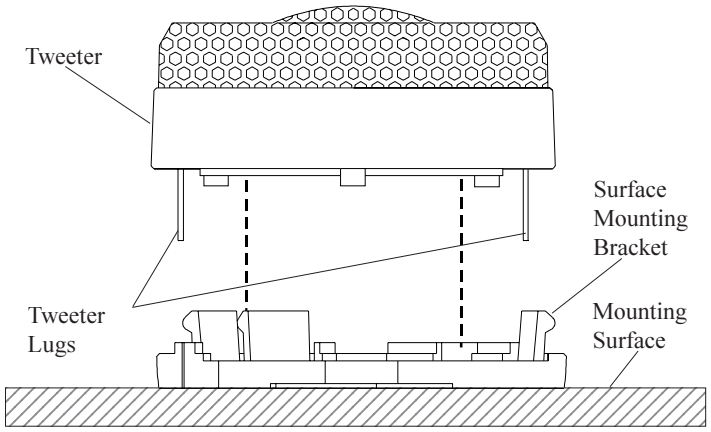


Figure 7

Mounting the Tweeter Flush Bracket

1. Cut a hole, using the supplied template. Insert the flush mounting spring clips into the slots in the cup and thread the supplied screw into the inside center of the mounting cup. Insert the cup into the hole and tighten the screw until the spring clips are secured.
2. Snap the tweeter into the surface mounting bracket.
3. Feed the tweeter wires from behind the mounting panel, through the cup, and install to the tweeter by pressing the push on connectors onto the tweeter connecting lugs. Observe polarity with the red wire connected to the positive (+) lug and the black wire connected to the negative (-) lug.
4. Insert the assembly into the cup and rotate clockwise until it locks in position.

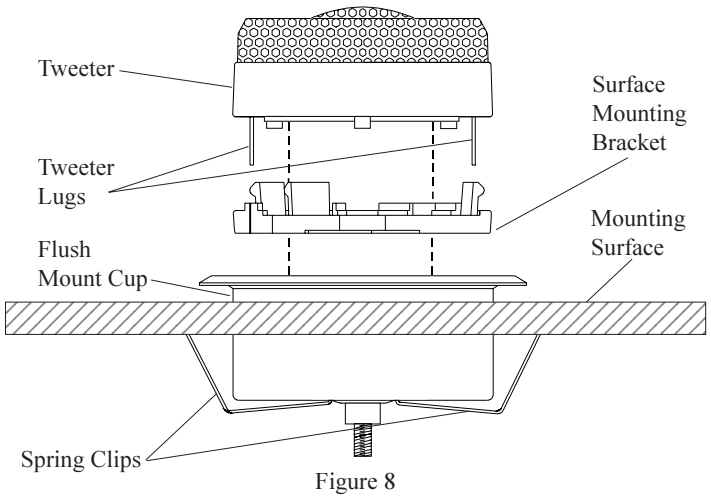


Figure 8

How to Connect a Two Way System

1. Press the connector ends of the supplied Woofer/ Midrange Red/Black cables onto the matching Woofer/ Midrange connecting lugs. Connect the Tweeters in a similar manner.
2. Attach the tinned ends of the two Red/Black Woofer/ Midrange cables to the Crossover Network WOOFER OUTPUT terminals. The Black wire connects to a MINUS (-) terminal and the Red wire to a PLUS (+) terminal.
3. Attach the tinned ends of the two Red/Black Tweeter cables to the Crossover Network TWEETER terminals. The Black wire connects to a MINUS (-) terminal and the Red wire to a PLUS (+) terminal.
4. Connect the MINUS (-) OUTPUTS of a McIntosh Power Amplifier to the MINUS SINGLE AMP WOOFER INPUT Crossover Network terminals and the PLUS (+) OUTPUTS to the PLUS (+) SINGLE AMP TWEETER Crossover Network terminals.
5. An optional modification to the Crossover Network produces a 6dB reduction in Tweeter level. When facing the terminal side of the crossover, cut the wire loop located on the right side of the crossover. Refer to Figure 9.

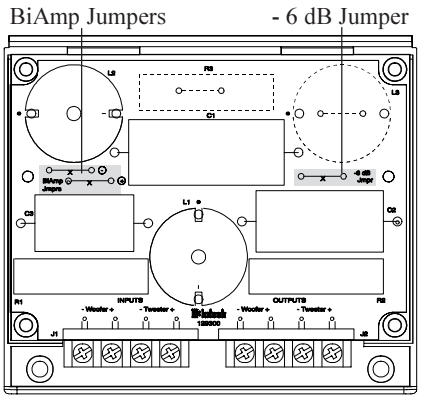
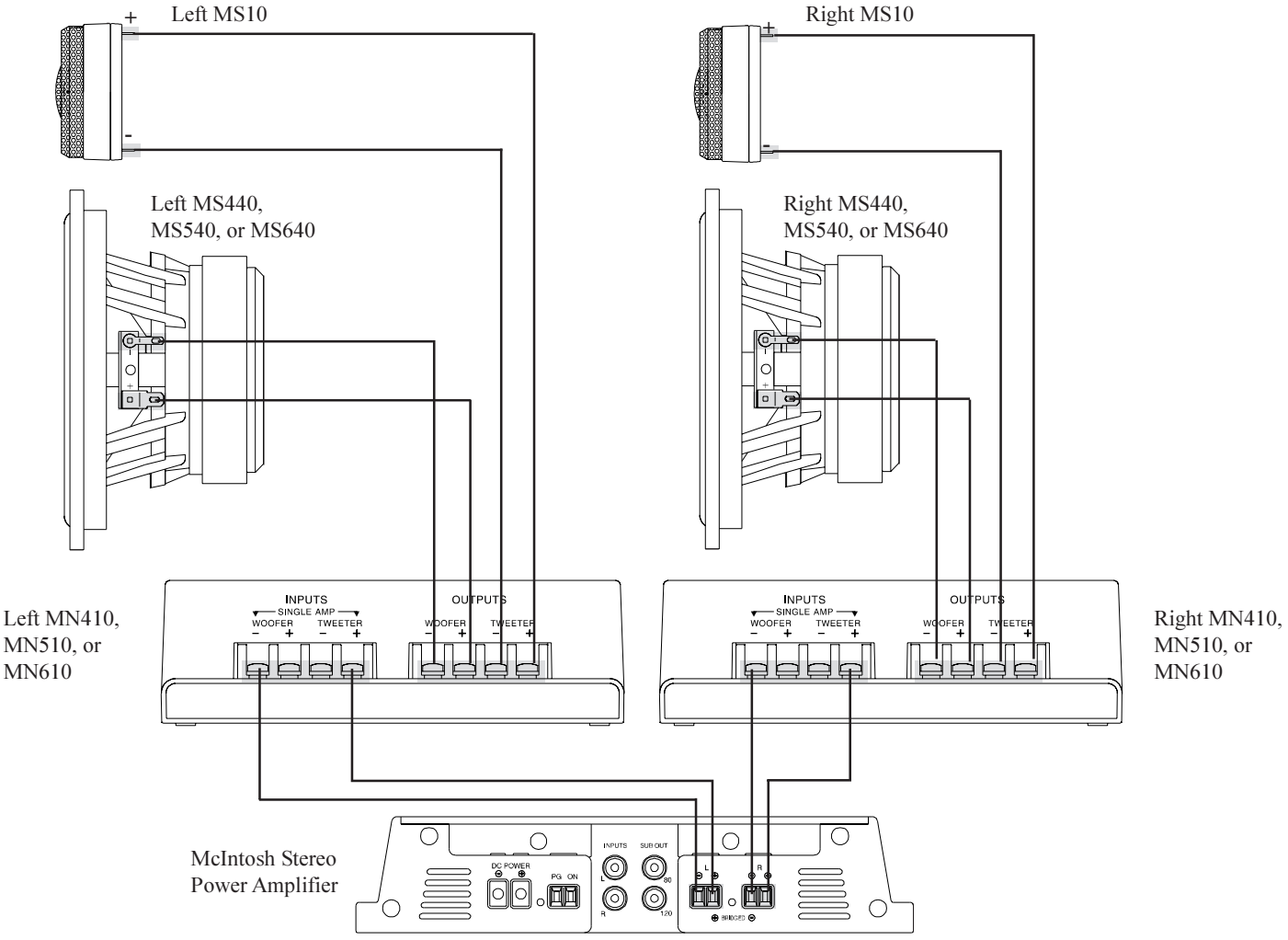


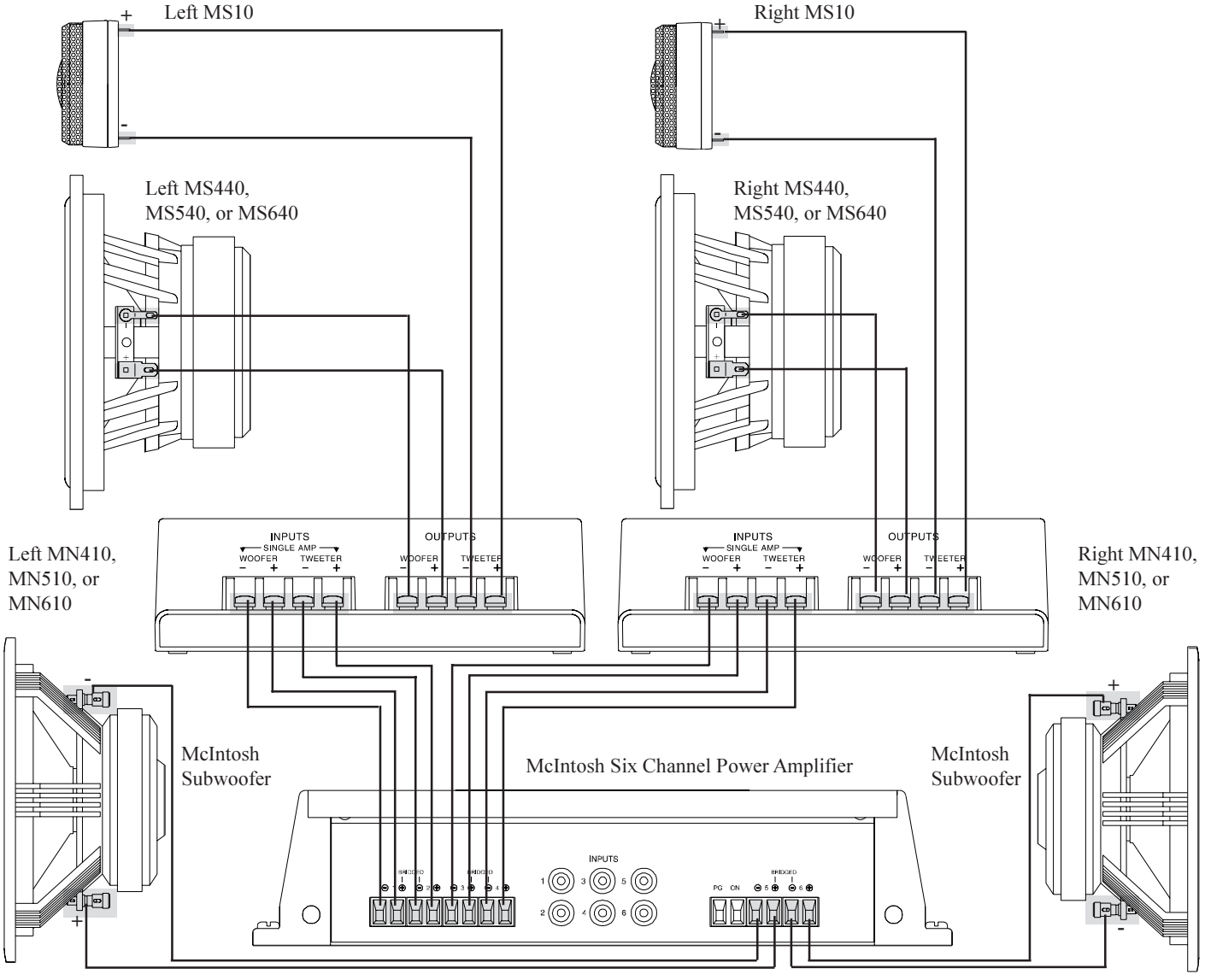
Figure 9



How to Connect a Bi-Amp Three Way System

Configure the Crossover Networks for BiAmp operation by performing the following modification. When facing the terminal side of the Crossover Network, cut the two wire loops located on the left side. Refer to Figure 9.

1. Press the connector ends of the supplied Woofer/ Midrange Red/Black cables on to the matching Woofer/Midrange connecting lugs. Connect the Tweeters in a similar manner.
2. Attach the tinned ends of the two Red/Black Woofer/ Midrange cables to the Crossover Network WOOFER OUTPUT terminals. The Black wire connects to a MINUS (-) terminal and the Red wire to a PLUS (+) terminal.
3. Attach the tinned ends of the two Red/Black Tweeter cables to the Crossover Network TWEETER terminals. The Black wire connects to a MINUS (-) terminal and the Red wire to a PLUS (+) terminal.
4. Connect cables from the Outputs of a McIntosh Six Channel Power Amplifier to the Crossover Networks, and to a pair of McIntosh Subwoofers as indicated in drawing below.
5. An optional modification to the Crossover Network produces a 6dB reduction in Tweeter level. When facing the terminal side of the crossover, cut the wire loop located on the right side of the crossover. Refer to Figure 9.



	MS440	MS540	MS640	MS10
Basic Parameters				
Peak Power	120 Watts	120 Watts	120 Watts	120 Watts
Continuous Power (EIA + H.P.)	60 Watts	60 Watts	60 Watts	60 Watts
Frequency Response	80 Hz - 8kHz	80 Hz -8 kHz	80 Hz - 8kHz	2.2 kHz - 20kHz
Reference Sensitivity (SPLo)	88 dB	89 dB	89 dB	88.5 dB
System Sensitivity[1]	84 dB	85 dB	85 dB	
Nominal Impedance (Znom)	4 Ohms	4 Ohms	4 Ohms	6 Ohms
Free Air Resonance (Fo)	85 Hz	53 Hz	47 Hz	
Total Q (Qts)	0.35	0.38	0.46	
Equivalent Acoustic Volume (Vas)	2.5 Litr	13.4 Litr	23.5 Litr	
Additional Parameters				
Voice Coil Resistance (Revc)	3.3 Ohms	3.3 Ohms	3.3 Ohms	
Piston Area (Sd)	0.005 sq m	0.009 sq m	0.0127 sq m	
Flux Density x Wire Length (BL)	4.7 TM	4.7 TM	4.7 TM	
Impedance Maximum (Zmax)	49 Ohms	63 Ohms	37 Ohms	
Reference Efficiency (ηo)	0.4 %	0.5 %	0.5 %	
Mechanical Q (Qms)	5.2	7.3	5.2	
Electrical Q (Qes)	0.4	0.4	0.5	
Mechanical Compliance (Cms)	705 uM/N	1168 uM/N	1026 uM/N	
Moving Mass + Air Load (Mms)	4.9 grams	7.7 grams	11 grams	
Voice Coil Winding Height (Hvc)	9.5 mm	9.5 mm	9.5 mm	
Mounting Dimensions				
Grille Overall (Diameter)	5 7/16” (138.1mm)	6 9/16” (166.7mm)	7 5/8” (194mm)	
Speaker + Grille Overall Depth	2 15/16” (74.6mm)	3 7/16” (87.3mm)	3 15/16” (100mm)	
Speaker Mounting Depth	2 3/8”(60mm)	2 3/4”(70mm)	3” (76mm)	
Speaker + Grille Mounting Depth	2 1/8”(54mm)	2 3/8”(60.3mm)	2 3/4”(69.8mm)	
Mounting Hole Diameter	3 3/4”(95mm)	4 3/4”(121mm)	5 7/8”(149mm)	
Weight				
Net (each speaker)	2.2 lbs.(1kg)	2.4 lbs.(1.1kg)	2.5 lbs. (1.2 kg)	2.5oz (70g)
In Shipping Carton (pair)	5.8 lbs.(2.7kg)	6.9 lbs.(3.2 kg)	7.3 lbs. (3.4kg)	1.1 lbs. (0.5kg)

	MN410	MN510	MN610
Parameters			
Crossover Frequency	2200 Hz	2400 Hz	2400 Hz
Low Pass Slope	12 db/oct	18 db/oct	18 db/oct
High Pass Slope	18 db/oct	18 db/oct	18 db/oct
Power Handling (max)	120 watts	120 watts	120 watts
Mounting Dimension			
Clearance Height	5” (127mm)	5” (127mm)	5” (127mm)
Weight			
Net	1.6 lbs.(0.7 kg)	1.6 lbs.(0.7 kg)	1.6 lbs. (0.7 kg)
In Shipping Carton	4.4 lbs.(2.0 kg)	4.4 lbs.(2.0 kg)	4.4 lbs.(2.0 kg)

[1] The System Sensitivity includes the Woofer/Midrange Driver, Crossover Network and MS10 Tweeter.

Packing Instructions

In the event it is necessary to repack the equipment for shipment, the equipment must be packed exactly as shown below. Use the original shipping carton and interior parts only if they are all in good serviceable condition. If a shipping carton or any of the interior part(s) are needed, please call or write Customer Service Department of McIntosh Laboratory. Please see the Part List for the correct part numbers.

Model	Part Number	Description
MS440	034065	Complete shipping carton
MS540	034066	Complete shipping carton
MS640	034067	Complete shipping carton
MN410	034068	Complete shipping carton
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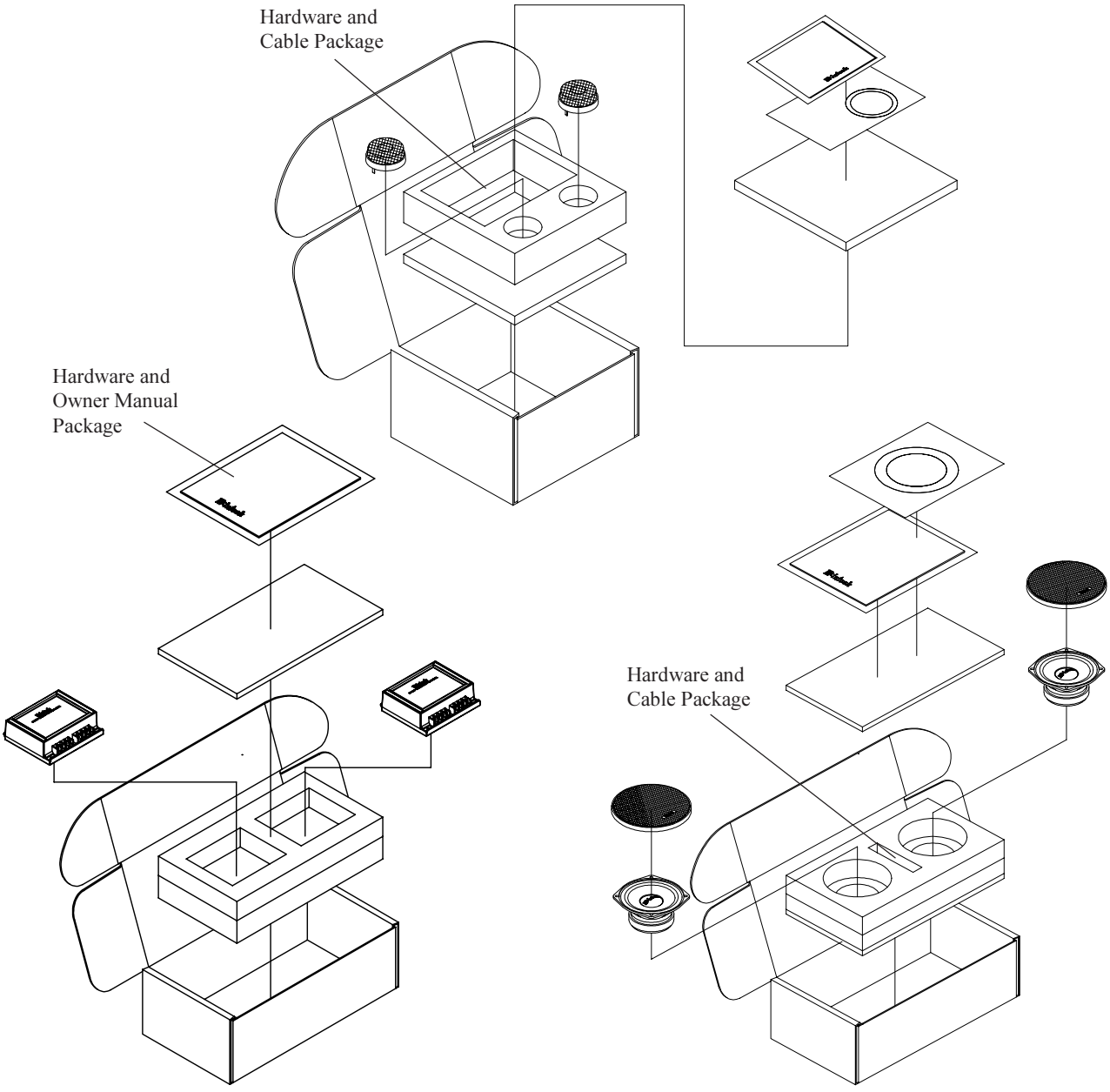

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